

**Project Name:** *Write out the entire, specific name.*

Groundwater Enhancement - Expand information about groundwater conditions in the California Water Plan Update 2013

Sponsor/Program Manager	Paul Massera
Project Manager	Abdul Khan

**Project Objective Statement:** *What must the project do? By When? Keep this statement to 25 words or less. Make it SMART (Specific, Measurable, Achievable, Relevant, and Time-based).*

Better inform groundwater management actions and policies through improved data and analysis.

**Triple Constraint Trade-off**

Resources	S	Select a different flexibility letter for each constraint N= Not Flexible S= Somewhat Flexible M= Most Flexible
Schedule	N	
Scope	M	

Estimated Start Date:	7/1/2010	Estimated End Date:	9/1/2013
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**Project Deliverables:** *What is the project going to produce? Create a list of tangible products that will result from project.*

- Integration of groundwater information from various State planning activities to compile and organize information about California's groundwater conditions including water level contour maps.
- A narrative discussion on groundwater conditions and management activities in each Regional Report as well as a statewide assessment with some site specific examples, indicating groundwater problem areas.
- Data gaps for the State's groundwater basins.
- Quantification and report on change in groundwater storage for planning areas/groundwater basins.
- Case Studies for selected groundwater basins to illustrate locally beneficial, regional resources management strategies.
- Identification and inventory of opportunities for conjunctive management of groundwater and other supplies.
- Identification and inventory of opportunities for groundwater banking and integrated flood management.
- Preliminary sustainability indicators for both groundwater quantity and quality.

**Strategic Fit:** *What is the Strategic Initiative Identifier for this project?*

- Supports Water Supply and Balance Team in their work.
- Supports California's Groundwater (Bulletin 118).
- Supports resource management strategies such as conjunctive management and groundwater storage, groundwater and aquifer remediation, recharge areas protection, and flood risk management.
- Supports recommendations of the California Water Plan Update 2009.

**Customer:** *Who are you doing the project for?*

- Department of Water Resources for support of DWR programs and projects.
- Local and regional water planning entities for consideration of locally beneficial resource management strategies.
- California Legislature to meet Water Code requirements.
- General public for education on groundwater water quantity and quality issues.

**Customer Benefits:** *What customer requirements does this project address? Relate these to: increase revenue, avoid costs, improve service, and/or comply with a mandate? Create a short list of customer benefits.*

- Provides in a single document, groundwater related information from different State initiatives.
- Furnishes the status of regional groundwater conditions, management activities, and problem areas to help identify data gaps to better inform future groundwater monitoring needs and activities.

- Provides estimates of change in groundwater storage as a first step towards quantifying groundwater budget.
- Includes Case Studies to help illustrate locally beneficial, regional resources management strategies.
- Identifies opportunities for management strategies such as conjunctive management of groundwater and other supplies, and groundwater banking and integrated flood management.
- Provides assessment of groundwater sustainability from both quantity and quality perspectives.

**Successful Completion Criteria:** *How will the success of the project be determined from the customer's perspective? Make criteria measurable so there is no doubt as to the project's success. Create a short list.*

- Number of entities outside the Water Plan using groundwater information generated by the Water Plan.
- Number of water managers outside the Water Plan working with the Water Plan to improve the groundwater content.

**Project Background:** *What is the primary motivation for this project? Include a brief high level description of the business area, the current situation, the desired situation, and the gaps that exist. This summary builds on your description in the Project Initiation form.*

As part of the Water Plan Updates 2005 and 2009 processes, advisory committee members as well as other water stakeholders highlighted the need to have access to better information about California's groundwater conditions. For example, the 1-2 million acre-feet of annual groundwater overdraft that is mentioned in both Updates 2005 and 2009 have been questioned for lack of rigorous analysis and associated documentation. Water Plan Update 2009, as Update 2005, provided limited quantitative information about groundwater resources in the Water Portfolios developed as part of the Updates. Changes in groundwater storage estimates in Update 2009 do not adequately characterize actual storage conditions because these estimates reflect net groundwater uses for many areas of the state. As a result, there is a great need to improve our understanding and quantification of groundwater resources in California. Without reliable data and analysis on groundwater, the state's goal to better manage the resource will likely remain unattainable. In the absence of data and analysis, also ineffectual will be the state's goal of increasing conjunctive management of groundwater with other water supplies as part and parcel of Integrated Regional Water Management (IRWM) programs and projects.

Of note is that the most current update of California's Groundwater (Bulletin 118, published in 2003) provided only minimal quantitative information about California's groundwater conditions for the 10 different hydrologic regions of the state. Quantitative information was limited to basic well statistics, well yields, and supply well water quality. Because of resource and schedule constraints, there was no attempt to compile data in an adequate manner and conduct analysis to capture change in groundwater storage or furnish detailed groundwater budget for any of the groundwater basins or DWR planning areas.

Another issue of concern is how to address long-term sustainability of groundwater from a quantity and a quality perspective. The major impediment, again, is lack of data to undertake the appropriate analysis to assess sustainability of the resource through the development and on-going tracking of a set of relevant sustainability indicators.

Update 2013 will confront the issue of lack of groundwater data directly with the vision of achieving a set of short-term goals, while keeping in the view a broader set of long-term goals to be attained in future Water Plan Updates beyond 2013. The major short-term goals are: quantification of change in storage, identification of data gaps, integration of information among various State initiatives, and Case Studies to illustrate utility of groundwater information for local resource management. The most critical long-term goal is to develop groundwater budget for groundwater basins or planning areas.

#### Project Scope:

In Scope: <i>List areas and functionality included in project.</i>	Out of Scope: <i>List areas and functionality not included in project.</i>
<ul style="list-style-type: none"> <li>• Integration of groundwater information from various State planning activities.</li> <li>• Identification of data gaps for the State's groundwater basins.</li> <li>• Quantification of change in groundwater storage for planning areas/groundwater basins.</li> <li>• Case Studies for selected groundwater basins.</li> </ul>	<ul style="list-style-type: none"> <li>• Detailed groundwater budget for all groundwater basins/planning areas of the state.</li> <li>• Detailed groundwater quality information.</li> </ul>

**Dependent Projects:** *What projects must be underway or completed before this project can be successful?*

- Water Plan Update 2013 Water Supply and Balance Team work Change in Storage Component.
- Groundwater Level Monitoring Data Initiative (SBx7-6).
- Bay Delta Office groundwater modeling (California Central Valley Groundwater-Surface Water Model, C2VSIM).
- State Water Resources Control Board's (State Board) Groundwater Ambient Monitoring & Assessment (GAMA) Program.
- USGS California's Central Valley Groundwater Study (Central Valley Hydrologic Model, CVHM).

**Risks:** *What characteristics or situations could cause this project to fail? Identify those items which are outside the jurisdiction of project and could result in a "show-stopper" to the project success. Create a short list.*

- Limited data (the amount of information available is generally greatest in northern California and tends to be more limited to the south).
- Political sensitivity associated with the use of and access to groundwater data.
- Delays associated with data identification, acquisition, evaluation, analysis, and synthesis.
- The continued, focused coordination necessary to facilitate the work done by a large group of staff.
- Departure of key staff.
- Limitations in Water Plan funding that may prevent full project implementation.

**Assumptions and Constraints:** *What assumptions were made in defining project? Are there constraints to the execution of project? List assumptions and constraints.*

- Water Plan Program Manager views this project as a high priority.
- Water Plan funding available to dedicate staff in the Headquarter and the Regional Offices to work on the project.
- Staff in the Headquarter and the Regional Offices are available to work on the project on a priority basis for 2 years.
- Concurrent demands on the times of key staff by other projects.
- No turnover in key staff.

**This Project Should Have:**

<b>Project Management Plan</b> <input type="checkbox"/>	PMP will include: <i>check all that apply</i>	Work Breakdown Structure <input type="checkbox"/>	Communications Plan <input type="checkbox"/>	Procurement Plan <input type="checkbox"/>	Human Resources Plan <input type="checkbox"/>
Quality Management Plan <input type="checkbox"/>	Stakeholder Register <input type="checkbox"/>	Risk Register <input type="checkbox"/>	Project Budget <input type="checkbox"/>	Project Schedule <input type="checkbox"/>	DWR Form 1498 <input type="checkbox"/>

**Major High-Level Milestone Targets:** *What events measure progress? E.g. Initiation Approved, Analysis Complete.*

Milestone	Target Date
Project objectives, deliverables, and resources needs; roles and responsibilities charts to integrate groundwater information from various State initiatives; and roles and responsibilities charts for project deliverables.	12/2010
Project scope with detailed task breakdown, resources needs, and schedule.	02/2011
Document integrating information from various State planning activities about California's groundwater conditions.	06/2011
Document narrating groundwater conditions and management activities in each Regional Report.	09/2011
Inventories of opportunities for: a) conjunctive management of groundwater and other supplies, and b) groundwater banking and integrated flood management.	12/2011
Quantification and report on change in groundwater storage for planning areas/groundwater basins.	08/2012
Case Studies for selected groundwater basins to illustrate locally beneficial, regional resources management strategies.	08/2012
Preliminary sustainability indicators for groundwater quantity and quality.	08/2012

Documentation of data gaps for the State's groundwater basins.	08/2012
Draft documentation of groundwater data and analysis for Public Review draft of Water Plan Update 2013.	09/2012
Final documentation of groundwater data and analysis for final Water Plan Update 2013.	09/2013

**Project Core Team Members**

Team Member	Phone/E-mail	Role
Abdul Khan		Project manager
Dan McManus		Co-lead
DWR Northern Regional Office staff		Technical support
DWR North Central Regional Office staff		Technical support
DWR Southern Regional Office staff		Technical support
DWR South Central Reg. Office staff		Technical support
DWR Headquarter Office staff		Technical support
DWR Bay-Delta Office staff		Technical support
Other State Agencies' staff		Coordination

Charter Version Number: 1

Updated By:

Date:

Approved By:

Date: